

PATENT
Atty. Dkt. No. YOR820030513US1

THE PENDING CLAIMS:

1. (Currently Amended) An imaging sensor comprising a plurality of pixels, where each of said pixels comprises:
a semiconductor substrate; and
a three-dimensional, vertical stack of color sensors on the semiconductor substrate; and
a plurality of color reflectors, wherein each pair of adjacent color sensors is separated by one of said color reflectors, and wherein the semiconductor substrate is separated from the three-dimensional, vertical stack of color sensors by one of said color reflectors.
2. (Cancelled)
3. (Currently Amended) The imaging sensor of claim ~~[[2]]~~ 1, wherein each color reflector reflects a different color spectrum.
4. (Original) The imaging sensor of claim 3, wherein each color reflector is a Bragg reflector.
5. (Original) The imaging sensor of claim 1, further including connectors that electrically connect each color sensor to logic on the semiconductor substrate.
6. (Original) The imaging sensor of claim 1, wherein each color sensor includes a photo-sensor and a plurality of transistors for interrogating photo-induced charges generated by said photo-sensor.
7. (Original) The imaging sensor of claim 6, wherein each color sensor is a CMOS active sensor.

8. (Currently Amended) The color imaging devices of claim 6, wherein said semiconductor substrate includes a row decoder and a column decoder.

9. (Currently Amended) The color imaging devices of claim 3, wherein the color reflector that reflects the longest set of wavelengths is positioned between the semiconductor substrate and the three-dimensional, vertical stack of color sensors, and wherein the color reflector that reflects the shortest set of wavelengths is positioned furthest from said semiconductor substrate.

10 (Original) The color imaging devices of claim 9, wherein each color sensor has a different thickness, wherein the thickest color sensor is adjacent to said color reflector that reflects the longest set of wavelengths, and wherein the thinnest color sensor is furthest from said semiconductor substrate.

11 (Currently Amended) An imaging sensor comprising:
a semiconductor substrate having a plurality of crossing row and column conductors;

a row decoder for selectively applying potentials to a set of row conductors;

a column decoder for selectively reading charges on a set of column conductors;

a pixel matrix comprised of a plurality of pixels, where each of said pixels is located adjacent to one of said crossings of row and column conductors, wherein each pixel includes comprises:

a three-dimensional, vertical stack of color sensors on said semiconductor substrate; and

a plurality of color reflectors, wherein each pair of adjacent color sensors is separated by one of said color reflectors, and wherein the semiconductor substrate is separated from the three-dimensional, vertical stack of color sensors by one of said color reflectors; and

electrical connectors that electrically connect each color sensor to one of said row conductors and to one of said column conductors.

12. (Cancelled)

13. (Currently Amended) The imaging sensor of claim [[12]] 11, wherein each color reflector reflects a predetermined color spectrum.

14 (Currently Amended) The imaging sensor of claim 13, wherein each color reflector reflects a different color spectrum, wherein one of said color reflectors that reflects a longest set of wavelengths is positioned between the semiconductor substrate and the three-dimensional vertical stack of color sensors, and wherein one of said color reflectors that reflects a shortest set of wavelengths is positioned furthest from said semiconductor substrate.

15. (Original) The imaging sensor of claim 14, wherein each color sensor has a photo-sensor, wherein the color sensor adjacent said color reflector that reflects the longest set of wavelengths has a photo-sensor that is thicker than the photo-sensor of the color sensor furthest from said semiconductor substrate.

16. (Original) The imaging sensor of claim 13, wherein each color reflector is Bragg reflector.

17 (Original) The imaging sensor of claim 11, wherein each color sensor includes a photo-sensor and a plurality of transistors for interrogating photo-induced charges generated by said photo-sensor.

18 (Withdrawn) A method of imaging, comprising the steps of:
converting a first portion of incoming light into a first electric charge;
reflecting a second portion of the incoming light and converting said second portion into additional first electric charge;
passing the remaining incoming light through a material while reflecting the second portion;
converting a third portion of incoming light into a second electric charge;

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reflecting a fourth portion of the incoming light and converting said fourth portion into additional second electric charge;

passing the remaining incoming light through a material while reflecting the fourth portion;

converting a fifth portion of incoming light into a third electric charge; and

reflecting a sixth portion of the incoming light and converting said sixth portion into additional third electric charge.

19. (Withdrawn) The method of imaging according to claim 18, further including the steps of interrogating said first electric charge to determine the intensity of a first color spectrum, interrogating said second electric charge to determine the intensity of a second color spectrum, and interrogating said third electric charge to determine the intensity of a third color spectrum.

20. (Withdrawn) The method of imaging according to claim 18, further including passing the remaining incoming light through a material while reflecting the sixth portion.